Dr. Peterson
Oracle Industry Connect, Education Panel
Wednesday, March 25, 2015

Opening Comments:

It's an exciting place, and we're in the midst of a time of tremendous momentum. During the past two decades, Georgia Tech has grown into one of the world's most globalized technological universities, with collaborations in more than 80 countries, and institutional partnerships in more than 30 countries. Along with our full campus in France, we have global centers in China, Singapore, Costa Rica, Panama, and Mexico. We have students from 115 countries. Students studying or working in about 70 countries, and 48% have international experience. Georgia Tech Professional Education teaches over 13,000 learners every year – that's in addition to the more than 23,000 students on campus.

We are known for collaboration with business and industry, and creating an innovation ecosystem.

We foster an environment of innovation for our students, and are committed to sustaining and enhancing excellence in scholarship and research.

COLE: Need for change discussion

BP: When doing research in 2011 for his book "That Used to Be Us," Tom Friedman went back to the first edition of his book "The World is Flat," which he started in 2004. He said something that illustrates the rapid changes in technology. And I quote: "When I was running around saying The World is Flat: we're all connected!

- Facebook didn't exist, twitter was still a sound, the Cloud was still in the sky, 4-G was a parking place, Linked in was a prison, applications were what you sent to college, Big Data was a rap star, and Skype was a typo.

Technology that is state-of-the-art when our students are freshmen is nearly out of date by the time they graduate. Ever-changing technology impacts the way we educate our students and it facilitates global partnerships.

- Lifelong learning. Methods change, but meeting educational needs of diverse group not new.

Georgia Tech has been engaged in Professional Education for more than a century. Many times students blend in-person and online options as they pursue their education. For example, almost 11% of our freshmen participated in GTPE's distance calculus program while in high school.

Through Professional Education, last year 247 public courses. Trained the workforce of over 2,000 companies. They represented about half of the world's countries. GTPE Military Program is the first Academic Institution in the country to host active duty military interns with Gulfstream as the first company to participate in the program.

25-year Strategic Plan launched 5 years ago. Engaged the entire Georgia Tech community. Many very smart people working on the plan, but we missed MOOCS. We have taken a leadership role in technology-enhanced education. In its first year of offering MOOCs in collaboration with the educational technology firm Coursera, Georgia Tech enrolled more than 200,000 students. By February 2015, -- 995,000. OMS-CS-- The program's first class will graduate in May. The OMS CS could help address the nation's growing shortage of qualified workers in STEM fields, which is one of the primary reasons AT&T decided to lend its financial support.

COLE: How does the cultural change imperative that we've just been discussing apply to an execution plan for operational excellence, need to plan and address the cultural change?

BP: Buckminster Fuller created the “Knowledge Doubling Curve”; he noticed that until 1900 human knowledge doubled approximately every century. By the end of World War II knowledge was doubling every 25 years. Today things are not as simple as different types of knowledge have different rates of growth. For example, nanotechnology knowledge is doubling every two years and clinical knowledge every 18 months. But on average human knowledge is doubling every 13 months. According to IBM, the build out of the “internet of things” will lead to the doubling of knowledge every 12 hours.

Our faculty and graduate students work hard to create environments that facilitate student learning — whether it is through improved curriculum, innovative instructional strategies, new technological tools, or other exciting materials. Georgia Tech’s vision is to define the 21st-century technological-research university, and as such to explore technologies and instructional approaches that will create an environment for student success.

COLE: Student Success. What do institutions need to do to support “the new normal” and can technology play a role in improving retention/completion rates?

BP: Georgia Tech’s first-year retention rates have been at 90% or above since 1999. Over the past five years, Georgia Tech has increased the first-year retention rate from 93% to 96%.

Over the past five years, Georgia Tech has increased six-year rates from 79% to 82%, five-year rates from 72% to 75%, and four-year graduation rates from 31% to 40%. Taking longer to experience study abroad or co-op. Almost half, or 48%, of Georgia Tech students participate in a study or work-abroad experience in at least one of 70 countries before graduation. We want to position students for success. At the same time, that might mean enrichment opportunities, or helping to pay for college through cooperative education, which means it will take a little longer.

Georgia Tech's participation in the Complete College Georgia (CCG) initiative has enabled the Institute to put greater emphasis on several aspects of student success. Efforts include:

- Organizational changes for enhanced academic advising and academic support programs
- Allocation of new resources to support positions and programs for military veterans, students with disabilities, first generation students, and students experiencing academic difficulties
- Continuation of strategic partnerships that seek to improve the readiness of K-12 students throughout Georgia for entry into STEM undergraduate degree programs as well as to support students who seek K-12 teaching opportunities.
- Piloting online undergraduate course offerings in the summer semester through Georgia Tech Professional Education, an effort that may reduce time for degree completion.
- Enhanced programs that target retention of underrepresented students. One example is The Challenge program, a summer bridge program targeting incoming underrepresented minority freshmen to provide them with a five-week, residentially based, immersive experience.

COLE: What will it take for institutions to take "unique differentiators" more seriously?

BP: A college education is an investment in time and financial resources, and students want to be sure that it will be worth it. We are investing in market research to determine Georgia Tech's differentiators, analyzing feedback from students, prospective students, alumni, industry, and select groups in the community. We're developing brand messaging architecture, and messages on what makes Georgia Tech unique for targeted audiences.

Some of Georgia Tech's differentiators: A commitment to excellence, An environment of innovation, Reputation for interdisciplinary collaboration, and collaboration with business and industry

- A sound investment.
    - While Georgia Tech boasts a top-ranked ROI by almost any measure, the Institute is recruiting students capable of and committed to improving the human condition through science, technology, business, and liberal arts programs.
- Student Leadership Opportunities, Global; Serve. Learn. Sustain (already being considered by many as a differentiator.

COLE: Why aren't we using data in sustainable and actionable ways?

BP: At Georgia Tech is that we don't shy away from using data to make decisions. Even when the data go against our intuition, we are data-informed. One of our best uses of data is to personalize the Georgia Tech story for our constituents. For example, our Impact Statements tell our legislative friends what Georgia Tech does for them in their districts. After seeing an Impact Statement for his district, one of our legislators quipped that he never paid attention to Georgia Tech before but he had to now because of the impact we had in his district. Our Enterprise Data Management initiative will enable analytics and data visualization to play an even greater role in Georgia Tech's future.

COLE: Another area where there is so much attention is on aspects of flipped classrooms in the technology context, but in a world where tech-led innovation is stronger, why are discussions of flipped classrooms being led by technologists versus academic leadership? What has the influence of the MOOC movement had on the overall quality of teaching and learning within your institution?

BP: Students on campus are benefitting from Georgia Tech's MOOCS. Robotics, Computational Investing class examples. Students on campus are gaining more opportunities for interaction in class due to flipped classrooms where they view the lectures online and come to class for discussion. It is interesting to note that this has been a mainstay at Georgia Tech even before the advent of MOOCs. Faculty initiated these changes in their continual quest to enhance the learning experience and allow more time for discussion, collaboration, and exploring practical applications of what they're learning.

COLE: Teaching/learning/research - do we not know how to measure the effectiveness of it?

BP: Measures for research effectiveness come in the form of sponsored awards, R&D expenditures, technology transfer and commercialization; for teaching, our graduates get jobs pretty readily and when we poll their employers, we are told that Georgia Tech graduates are competent in the workplace; for public service and economic development, look at the work of EI2 with ATDC, as well as the assistance we give to communities who are looking to create jobs, save jobs, etc.

COLE: Will enrollment be different? How is the role of IT changing?

BP: As long as there are 18-year olds, there will be a need for the traditional college experience because parents are more than ready to send their kids away…to school, however, technology plays a ubiquitous role in their education and has since the first computers hit campus. Among the Top IT issues in 2015 identified by Educause, you will find:

- Optimizing the use of technology in teaching and learning in collaboration with academic leadership, including understanding the appropriate level of technology to use

- Improving student outcomes through an institutional approach that strategically leverages technology
- Providing user support in the new normal—mobile, online education, cloud, and BYOD environments
- Developing mobile, cloud, and digital security policies that work for most of the institutional community

The easy answer is that you provide time, money and people to set up the right infrastructure to support operational efficacies. The reality is that you have competing priorities and you need to decide where to direct resources. Because IT is a great enabler, the investment seems intuitive.